



THE PULL OF THE EARTH

Junior Science Series for Children

THE PULL OF THE EARTH



Illustrations by
Pratima



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About the Book

This is a brief introduction to the concept of GRAVITY, the pull of the Earth, giving a large number of situations in dialogue form. Although the story is contrived, our pre-publication tests conducted in some primary schools involving children of 8-10 years old indicated that they liked the story and understood the concept.

Some teachers of the test schools were of the view that too many situations emphasising the same concept would be boring to children. The test, however, indicated that this was an adult view, because they were familiar with most of the situations mentioned in the story. But for children, most situations and experiences were new and they, therefore, enjoyed reading about the same.



One fine evening four brothers and sisters, Susheel, Gauri, Mohan and Geeta were playing hide and seek in the park. Susheel was caught and all the three pounced upon him.



When the children dispersed to start another round, suddenly, Gauri started crying. Their mother came running to her and asked, "Hey, what is wrong with you?"

"I had some money with me. It is missing now," replied Gauri.

"Let us look around. Maybe we can find it," said Susheel.

Mohan found the coins near the flower lane. "Here are the coins, come and see," said he, "Do not cry like a baby." Gauri lifted the money and asked, "How did the money come out of my pocket?"

"Let us look into your pocket, maybe there is a hole in it," said Mohan.

Mohan examined her pocket.

"Oh dear", said their mother. "The corner of your pocket is not stitched. The money slipped out from here. Gravity played the trick."



"What is gravity, Mummy?" asked Gauri.

"Gravity is the force with which the Earth pulls all bodies towards itself", replied her mother.

"What is meant by force, Mummy?" Gauri enquired.

"A push or pull is a force," replied her mother.

"Look, I am pushing the swing. I am giving it a force. This is a force of push," she explained.





"Here is a lawn mower", she pointed out. "I am pulling it now. I am giving it a force. But, this is the force of pull."

"Now, Mummy, I am being pulled by the Earth, as you say, but I do not feel so. Do you feel it in any way?" asked Gauri.

Her mother smiled and said, "Let us move towards the slide and I will explain."

"Now go up the slide through the stairway. Allow yourself to slide down. Just feel free and do not give yourself any force," her mother told her.

"What did you feel? Why did you come down?" asked her mother.

"Obviously, some force pulled you down. This is the force of gravity. One does not feel it, but it is always there", she added.

As they moved further, they saw children practising for the high jump event.





"Look at that high jump event," their mother pointed out to the children. "See, Harish jumped up with the help of a pole. He left it at the top, gently crossed the string, and came down," she explained.

"Is it gravity which pulled him down?" asked Mohan.

"Of course," replied his mother. "It is gravity which pulled him down."

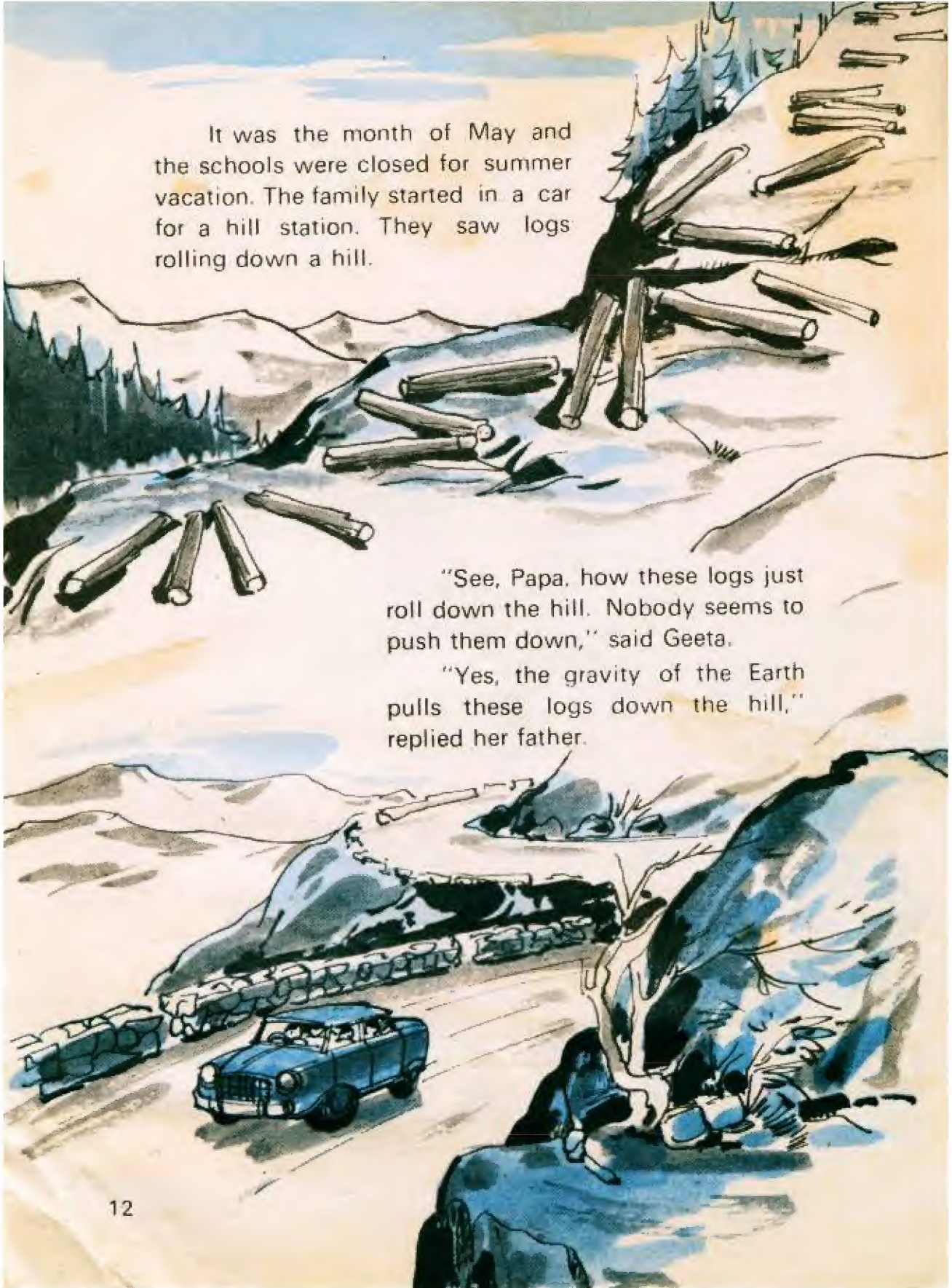




Soon they passed by the swimming pool and Mohan watched the divers.

"When a swimmer jumps off a spring-board in a swimming pool, he falls down", said Mohan. "Is it the gravity of the Earth which pulls him down?" he asked.

"Yes, the gravity of the Earth pulls the swimmer down," replied his mother.



It was the month of May and the schools were closed for summer vacation. The family started in a car for a hill station. They saw logs rolling down a hill.

"See, Papa, how these logs just roll down the hill. Nobody seems to push them down," said Geeta.

"Yes, the gravity of the Earth pulls these logs down the hill," replied her father.



It started drizzling and her father said "Look, rain also falls down because of the gravity of the Earth."


"Water in the stream also flows down the slope due to gravity," he added.

The family stopped for a cup of tea in a market. A house was being built across the road. A truck carrying gravel was being unloaded.

"Look, Papa, gravel comes down itself when the bed of the truck is tilted up," said Geeta.

"Yes, gravity pulls it down," replied her father.





The family next stopped at a hotel for lunch. Many people were watching a waterfall across the road.

"What a beautiful waterfall!" exclaimed Gauri.

"Indeed it is," replied her father.

"Look, when water is free to move, gravity pulls it down," explained her mother.

"What do you mean by **free to move**, Mummy?" asked Mohan.

"When water is placed in a tumbler, it is not free to move. It is bound by the wall of the tumbler," replied his mother.

"When we tilt the tumbler like this, we give water freedom to move. And, gravity pulls it down," she added.

"Who provides the tilt in the case of the waterfall?" asked Susheel.

"The slope of the mountain is a tilted surface. It provides freedom of movement to water. Gravity pulls water downwards," his mother explained.





The family next stopped at a weir and all went out to watch it.

"How beautiful it is!" said Susheel.

"How does water come down here?" asked Mohan.

"A wall is built across the river. The level of water rises up to the top of this wall. Then water flows over and keeps on flowing," replied his father. "The gravity of the Earth pulls water down."

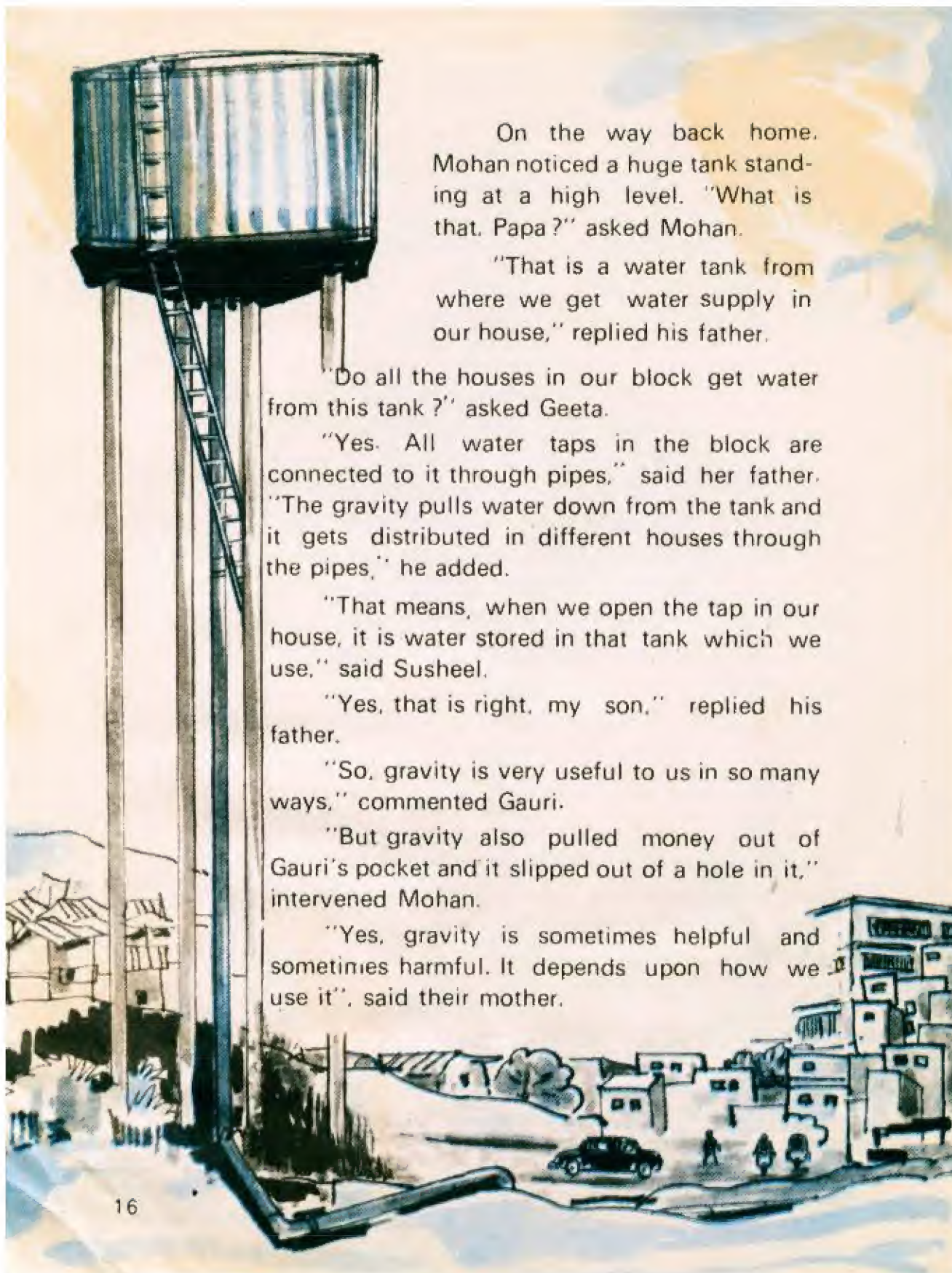
The family next went down the stairway.

"The water from the weir is made to pass into the tubes. Gravity pulls water down the tubes. Water falls on the wheels and they turn. Wheels turn the machines and electricity is produced," explained their father.

"Is it so, Papa?" asked Mohan. "Then gravity is very useful to us," he added.

"Yes, it is," said his father.





On the way back home, Mohan noticed a huge tank standing at a high level. "What is that, Papa?" asked Mohan.

"That is a water tank from where we get water supply in our house," replied his father.

"Do all the houses in our block get water from this tank?" asked Geeta.

"Yes. All water taps in the block are connected to it through pipes," said her father. "The gravity pulls water down from the tank and it gets distributed in different houses through the pipes," he added.

"That means, when we open the tap in our house, it is water stored in that tank which we use," said Susheel.

"Yes, that is right, my son," replied his father.

"So, gravity is very useful to us in so many ways," commented Gauri.

"But gravity also pulled money out of Gauri's pocket and it slipped out of a hole in it," intervened Mohan.

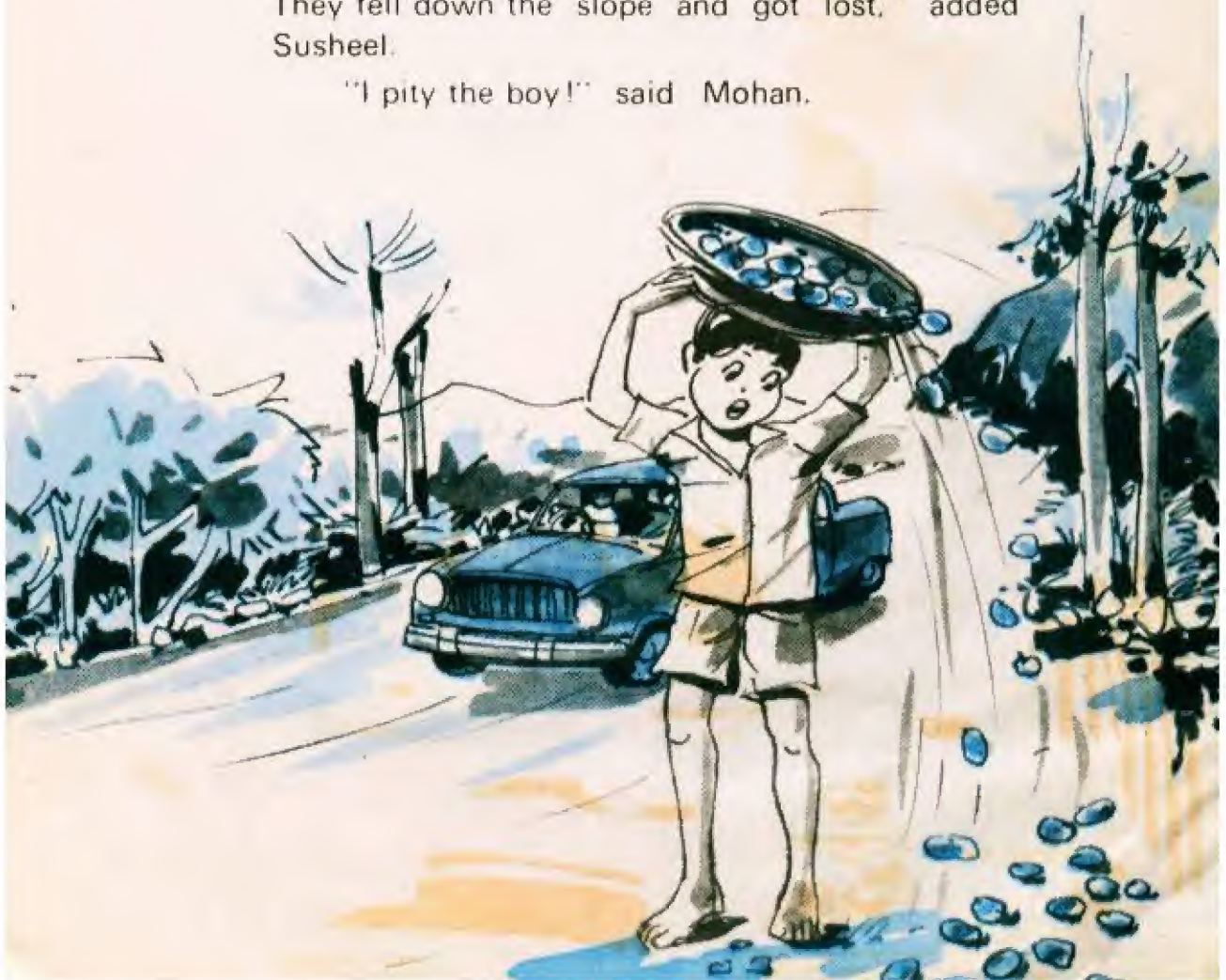
"Yes, gravity is sometimes helpful and sometimes harmful. It depends upon how we use it", said their mother.

The car moved some distance forward. A boy carrying potatoes in a basket was crossing the road. When he saw the car coming towards him, he stopped suddenly. Some potatoes fell down from his basket, crossed the road and went down the slope. Father slowed down the car and then stopped for a while.

"Gravity pulled the potatoes down as soon as they fell out of the basket," said Geeta.

"And gravity continued pulling them down. They fell down the slope and got lost," added Susheel.

"I pity the boy!" said Mohan.





The family returned home in the evening.

During the dinner they heard a bang from the kitchen. Their mother ran towards the kitchen to see what had happened. Her husband and the children also followed her.

"The cat pushed the milk bottle," said the mother. "It tilted to one side and then fell on the floor. Milk became free to move and the gravity of the Earth pulled the milk down. In this case too gravity has proved to be harmful to us," mother added.

"Now we understand, Mummy. We should be careful in handling things," said Mohan.



About the IBH 'Junior Science Series for Children

Science is a search for order in nature, for unity in diversity.

Science is more than a collection of facts, it is also a process in which observations and their interpretations are used to develop new concepts, to extend the understanding of the world, to suggest new areas for future. Its focus is on inquiry and action.

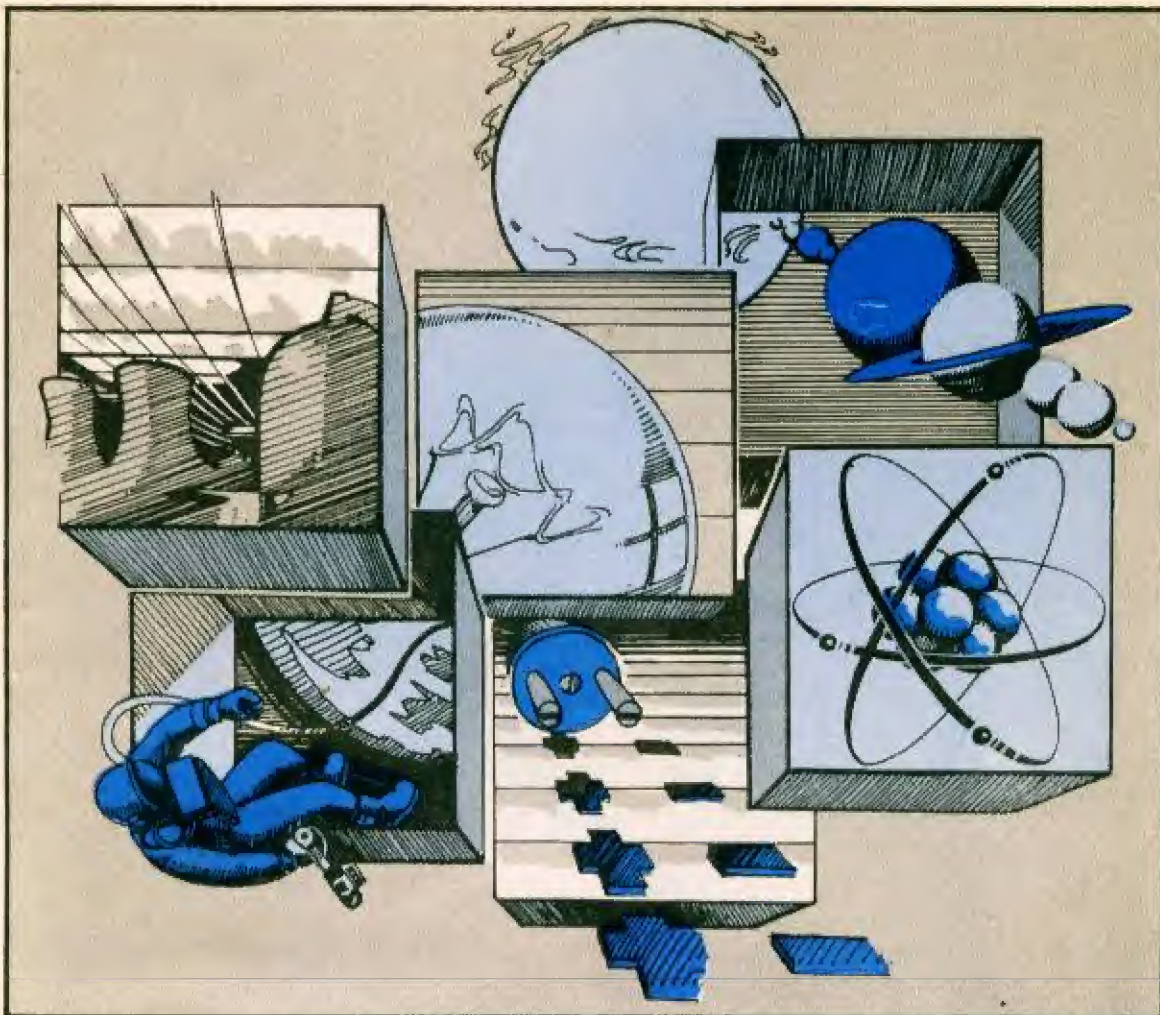
Children are often interested in exploring the environment around them and in finding out answers to questions that arise in their mind. To meet the curiosity of children and arouse their interest further, the IBH PUBLISHING COMPANY has designed 'JUNIOR SCIENCE SERIES FOR CHILDREN' at two levels:

- (1) Lower Elementary (age-group 5—9) and
- (2) Upper Elementary (age group 10—13).

The Pull of the Earth is one of the books in the Lower Elementary Series. Other books are:

1. Air around us
2. Water around us
3. Fun with Magnets
4. Heat
5. Sound
6. Fruits around us
7. Seeds around us

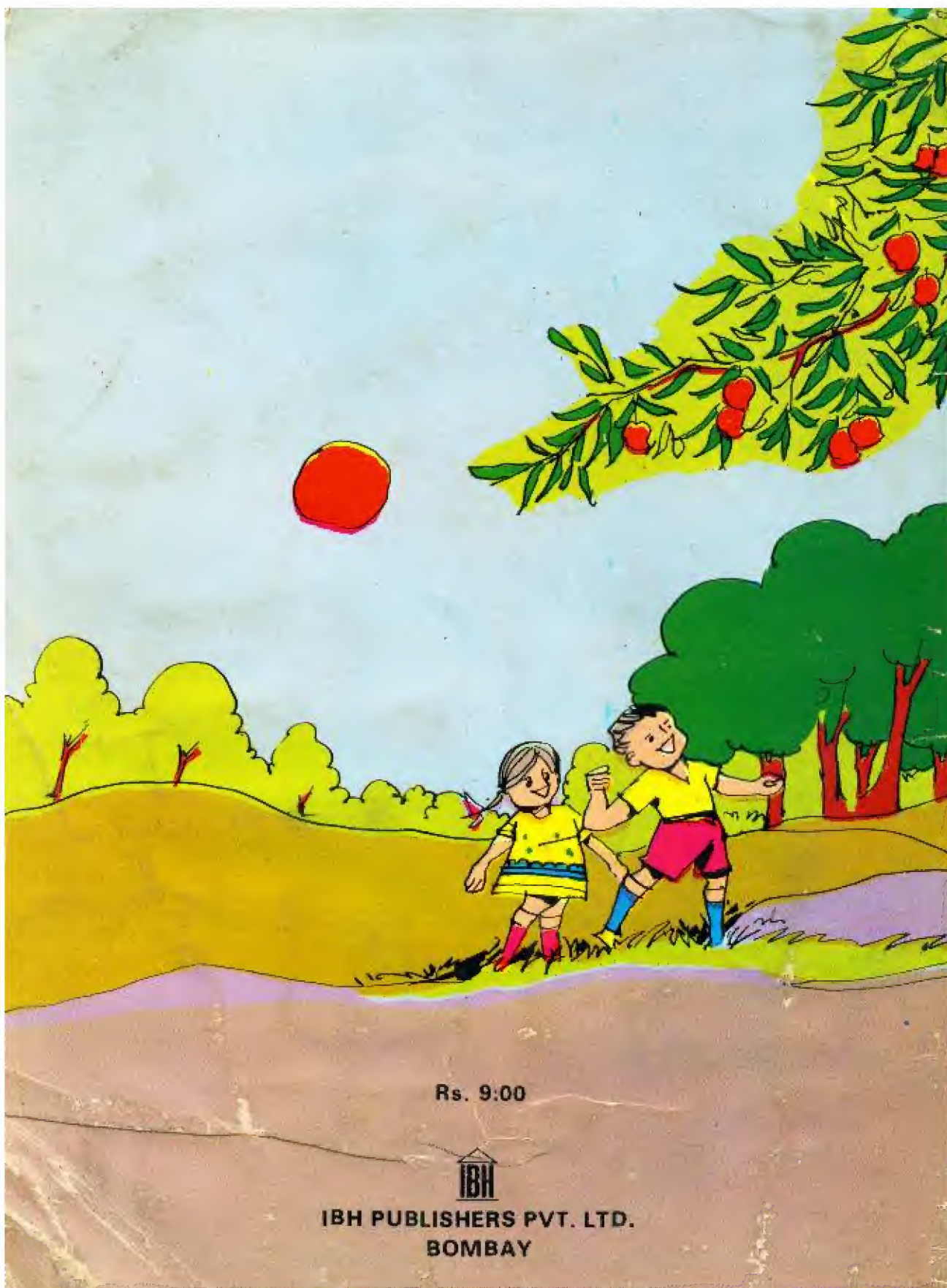
The language used in the books is simple and direct. An attempt has been made to introduce the children to concepts and processes of science within the level of their understanding. A larger number of activities have been suggested which can be performed by children with the materials available in their home or around them.



**BOOKS AVAILABLE IN THE
IBH JUNIOR SCIENCE SERIES FOR CHILDREN**

- | | |
|------------------------|------------------|
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